

Notice of Allowability

Application No.

10/036,466

Applicant(s)

NAGENDRA ET AL.

Examiner

Ramsey Refai

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to Amendment after final filed 12/22/06.
2. ☒ The allowed claim(s) is/are 4-10, 14-20 and 24-30.
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some* c) ☐ None of the:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date _____
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____

BUNJOB JAROENCHONWANIT
SUPERVISORY PATENT EXAMINER

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EXAMINER' S AMENDMENT

Responsive to Amendment after final received December 22, 2006. Claims 1- 30 were pending. After examiner' s amendment below, claims 4-10, 14-20, and 24-30 are allowed.

An examiner' s amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner' s amendment was given in a telephone interview with Thinh V. Nguyen on February 1, 2007.

- The claims in the application have been amended as follows:

1. (currently canceled)
2. (currently canceled)
3. (currently canceled)
4. (currently amended) The apparatus of claim [[3]] 5, wherein the lower interface to receive the request from at least one of the first and second lower peers to search for the target peer.
5. (currently amended) ~~The~~ An apparatus of claim 2 comprising:
a cache of a current peer in a current ring at a current level to store information of ring peers within the current ring, the current ring being part of an hierarchical ring structure of

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peer-to-peer (P2P) nodes, the hierarchical ring structure having at least one of a lower level and an upper level;

a peer locator coupled to the cache to locate a target peer in the cache in response to a request to search for the target peer; and

a peer interface coupled to the peer locator to interface to at least one of a first lower peer in a first lower ring at the lower level and a first upper peer in a first upper ring at the upper level, the peer interface to forward the request to search for the target peer to at least one of the first lower peer and the first upper peer when the target peer is not located in the cache;

wherein the peer interface comprises:

a lower interface to interface to at least one of the first lower peer and a second lower peer in a second lower ring at the lower level, the lower interface to forward the request to at least one of the first and second lower peers to search for the target peer when the target peer is not located in the cache; and

an upper interface to interface to at least one of the first upper peer and a second upper peer in a second upper ring at the upper level, the upper interface to forward the request to at least one of the first and second upper peers to search for the target peer when the target peer is not located in the cache.

6. (previously presented) The apparatus of claim 5, wherein the upper interface to receive the request from at least one of the first and second upper peers to search for the target peer.

7. (currently amended) The apparatus of claim [[2]] 5, wherein the cache stores information of at least one of the first and second lower peers.

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8. (currently amended) The apparatus of claim ~~[[2]]~~ 5, further comprising:

a registrar to process registration of at least one of the current peer to the first upper peer and the first lower peer to the current peer, the registration including the information on one of the current peer, the first upper peer, and the first lower peer.

9. (currently amended) The apparatus of claim ~~[[1]]~~ 5, wherein the peer locator comprises: an information retriever to retrieve the information of the target peer if the target peer is located in the cache,

10. (currently amended) The apparatus of claim ~~[[1]]~~ 5, wherein the information includes an address of the target peer.

11. (currently canceled)

12. (currently canceled)

13. (currently canceled)

14. (currently amended) The method of claim ~~13~~ 15, wherein interfacing to at least one of the first lower peer and a second lower peer comprises:

receiving the request from at least one of the first and second lower peers to search for the target peer.

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15, (currently amended) ~~The A method of claim 12~~ comprising:

storing information of ring peers within a current ring at a current level in a cache of a current peer in the current ring, the current ring being part of an hierarchical ring structure of peer-to-peer (P2P) nodes, the hierarchical ring structure having at least one of a lower level and an upper level;

locating a target peer in the cache in response to a request to search for the target peer;

and

interfacing to at least one of a first lower peer in a first lower ring at the lower level and a first upper peer in a first upper ring at the upper level to forward the request to search for the target peer to at least one of the first lower peer and the first upper peer when the target peer is not located in the cache;

wherein interfacing comprises:

interfacing to at least one of the first lower peer and a second lower peer in a second lower ring at the first lower level to forward the request to at least one of the first and second lower peers to search for the target peer when the target peer is not located in the cache; and

interfacing to at least one of the first upper peer and a second upper peer in a second upper ring at the upper level; ~~and forwarding to forward~~ the request to at least one of the first and second upper peers to search for the target peer when the target peer is not located in the cache.

16. (previously presented) The method of claim 15, wherein interfacing to at least one of the first upper peer and a second upper peer comprises:

receiving the request from at least one of the first and second upper peers to search for the target peer.

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17. (currently amended) The method of claim ~~12~~ 15, wherein storing the information comprises:

storing the information of at least one of the first and second lower peers.

18. (currently amended) The method of claim ~~12~~ 15, further comprising:

processing registration of at least one of the current peer to the first upper peer and the first lower peer to the current peer, the registration including the information on one of the current peer, the first upper peer, and the first lower peer.

19. (currently amended) The method of claim ~~11~~ 15, wherein locating comprises:

retrieving the information of the target peer if the target peer is located in the cache.

20. (currently amended) The method of claim ~~11~~ 15, wherein storing the information comprises:

storing an address of the target peer.

21. (currently canceled)

22. (currently canceled)

23. (currently canceled)

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24. (currently amended) The system of claim ~~23~~ 25, wherein the lower interface to receive the request from at least one of the first and second lower peers to search for the target peer.

25. (currently amended) ~~The A system of claim 22~~ comprising:

a requesting peer to generate a request to search for a target peer; and

a current peer in a current ring at a current level, the current ring being connected to the requesting peer in an hierarchical ring structure of peer-to-peer (P2P) nodes, the hierarchical ring structure having at least one of a lower level and a upper level, the current peer including a P2P subsystem, the P2P subsystem comprising:

a cache to store information of ring peers within the current ring,

a peer locator coupled to the cache to locate the target peer in the cache in response to the request, and

a peer interface coupled to the peer locator to interface to at least one of a first lower peer in a first lower ring at the lower level and a first upper peer in a first upper ring at the upper level, the peer interface to forward the request to search for the target peer to at least one of the first lower peer and the first upper peer when the target peer is not located in the cache;

wherein the peer interface comprises:

a lower interface to interface to at least one of the first lower peer and a second lower peer in a second lower ring at the lower level, the lower interface to forward the request to at least one of the first and second lower peers to search for the target peer when the target peer is not located in the cache; and

an upper interface to interface to at least one of the first upper peer and a second peer in a second upper ring at the upper level, the upper interface to forward the request to at least one

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of the first and second upper peers to search for the target peer when the target peer is not located in the cache.

26. (previously presented) The system of claim 25, wherein the upper interface to receive the request from at least one of the first and second upper peers to search for the target peer

27. (currently amended) The system of claim ~~22~~ 25, wherein the cache stores information of at least one of the first and second lower peers.

28. (currently amended) The system of claim ~~22~~ 25, wherein the P2P subsystem further comprising:

a registrar to process registration of at least one of the current peer to the first upper peer and the first lower peer to the current peer, the registration including the information on one of the current peer, the first upper peer, and the first lower peer.

29. (currently amended) The system of claim ~~24~~ 25, wherein the peer locator comprises:

an information retriever to retrieve the information of the target peer if the target peer is located in the cache.

30. (currently amended) The system of claim ~~24~~ 25, wherein the information includes an address of the ~~target~~ peer.

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- The following is an examiner's statement of reasons for allowance:

None of the prior art of record, neither singly nor in combination, teach an apparatus a cache of a current peer in a current ring at a current level to store information of ring peers within the current ring, the current ring being part of an hierarchical ring structure of peer-to-peer (P2P) nodes, the hierarchical ring structure having at least one of a lower level and an upper level; a peer locator coupled to the cache to locate a target peer in the cache in response to a request to search for the target peer; and a peer interface coupled to the peer locator to interface to at least one of a first lower peer in a first lower ring at the lower level and a first upper peer in a first upper ring at the upper level, the peer interface to forward the request to search for the target peer to at least one of the first lower peer and the first upper peer when the target peer is not located in the cache; wherein the peer interface comprises: a lower interface to interface to at least one of the first lower peer and a second lower peer in a second lower ring at the lower level, the lower interface to forward the request to at least one of the first and second lower peers to search for the target peer when the target peer is not located in the cache; and an upper interface to interface to at least one of the first upper peer and a second upper peer in a second upper ring at the upper level, the upper interface to forward the request to at least one of the first and second upper peers to search for the target peer when the target peer is not located in the cache as recited in claim 5.

Independent claims 15 and 25 contain similar limitations as claim 5 and are allowed for similar reasons stated above.

Dependent claims 4, 6-10, 14, 16-20, 24, and 26-30 depend on independent claims 5, 15, and 25 and therefore are allowed for similar reasons as their respective parent claim.

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Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled " Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramsey Refai whose telephone number is (571) 272-3975. The examiner can normally be reached on M-F 8:30 - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bunjob Jaroenchonwanit can be reached on (571) 272-3913. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ramsey Refai
Examiner
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February 2, 2007

